

Payment Gateways

Workflows, Triggers and Extensions

compiled by
graham brookins
brookins consulting
<http://brookinsconsulting.com/>

Term - Payment Gateway

- Wikipedia defines the term 'Payment Gateway' as ...

A Payment Gateway is an e-commerce service that authorizes payments for e-businesses and online retailers.

It is the equivalent of a physical POS (Point-of-sale) terminal located in most retail outlets.

Payment gateways encrypt sensitive information, such as credit card numbers, to ensure that information passes securely between the customer and the merchant.

Term - Workflow

- Wikipedia defines the term 'Workflow' as ...

Workflow at its simplest is the movement of documents and/or tasks through a work process.

More specifically, workflow is the operational aspect of a work procedure:

- how tasks are structured,
- who performs them,
- what their relative order is,
- how they are synchronized,
- how information flows to support the tasks and how tasks are being tracked.

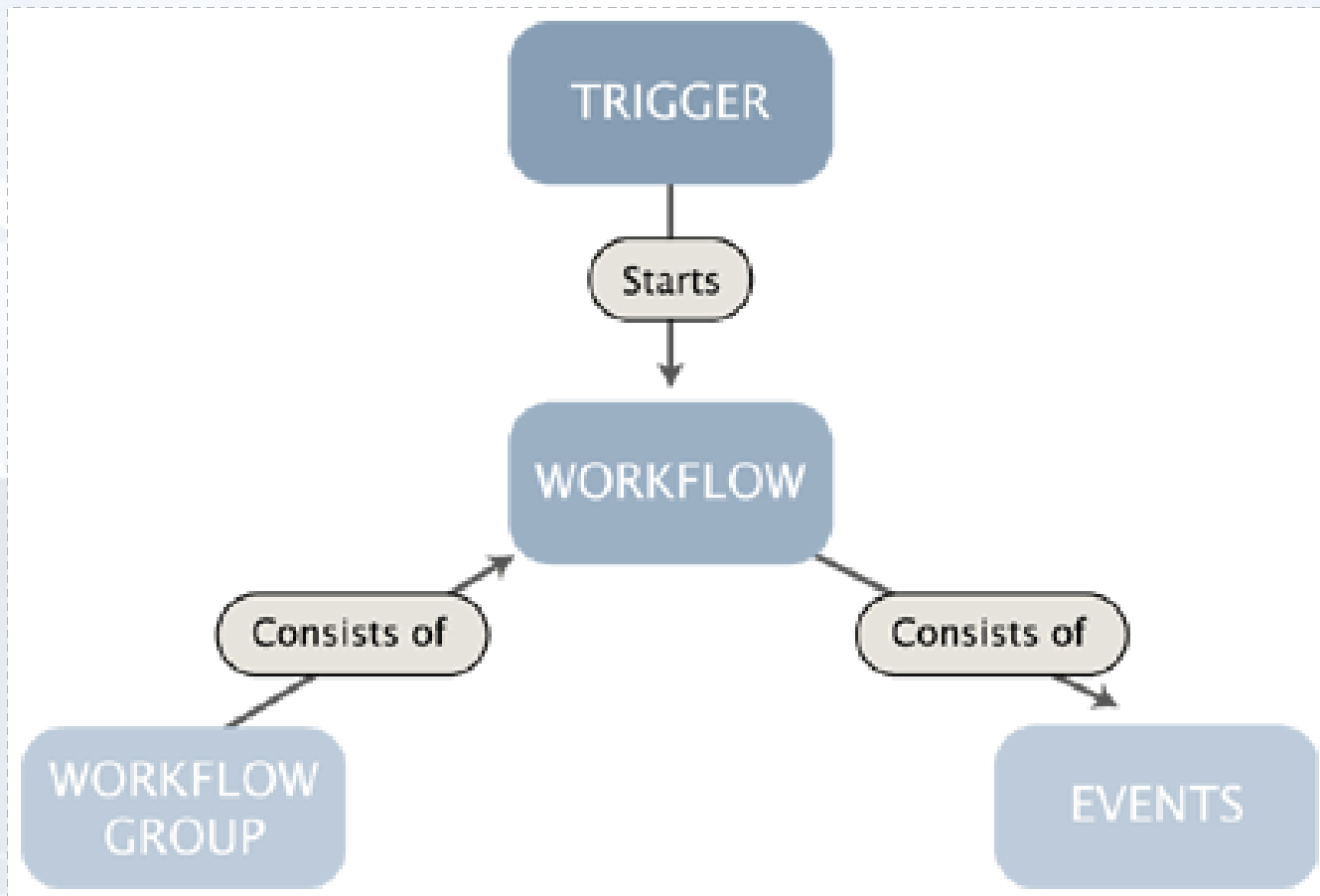
Overview

- Describe the terms and relevance including payment gateways, workflows, events, triggers and extensions
- Describe eZ authorize
- Review the installation of a payment gateway
- The Installation of a payment gateway, eZ authorize
- Demonstrate a payment gateway workflow using eZ publish
- Show examples of payment gateway extensions
- Stay tuned ...
 - Solutions
 - Conclusions
 - Questions
 - References
 - Tutorials

Introduction

- Business logic as workflows
- Workflows allows you to insert custom code into processes in eZ publish
- Payment gateway workflows are an instance of workflows found in automated payment transaction authorization, just one of many commerce workflows.
- Payment gateway are used for things like
 - commerce (in-store, online shops, services)
 - financial transaction automation
 - social networking
 - online banking

Payment Gateways - Workflow Diagram



Payment Gateways - Workflows

- The system comes with an integrated workflow mechanism
- The workflow system makes it possible to perform different tasks with or without user interaction
- The workflow implementation is based on the following components:
 - Events
 - Workflows
 - Workflow groups
 - Triggers

Payment Gateways == Workflow Events

- A 'payment gateway' workflow is initiated by a trigger
- A trigger is associated with a function of a module
- A trigger will start the assigned workflow either before or after that the module's function has completed
- A trigger is capable of initiating only a single workflow *

Payment Gateways - Workflow Events

- Custom workflow events can be programmed in PHP
- A workflow is a named collection of events (ordered sequence of actions)
- eZ publish comes with a growing collection of events that cover the needs of typical everyday tasks
- An event carries out a specific task
- The built-in multiplexer event makes it possible to start several workflows from within a workflow *

Payment Gateways - Facts on Triggers

- The general idea about workflows and triggers is to attach separate written code at a specific place.
- The workflow is the code (advice) that will be attached to the specific place.
- The triggers are hardcoded places (joinpoints) where the code can be applied.
- The trigger page (setup, trigger) contains five triggers, of which three apply to the shop module.

Payment Gateways - Trigger Placement

- Currently, the (shop) workflows can be placed:
 - Before or after a product is added to basket,
 - Before or after basket is updated,
 - Before a confirm order,
 - Before a check out, and
 - After a check out.

Payment Gateways - Available Generic Triggers

- The following payment gateway workflow triggers are available from the eZ publish admin -> setup -> triggers.

Module	Function	Connection type
content	publish	before
content	publish	after
content	read	before*
content	read	after*

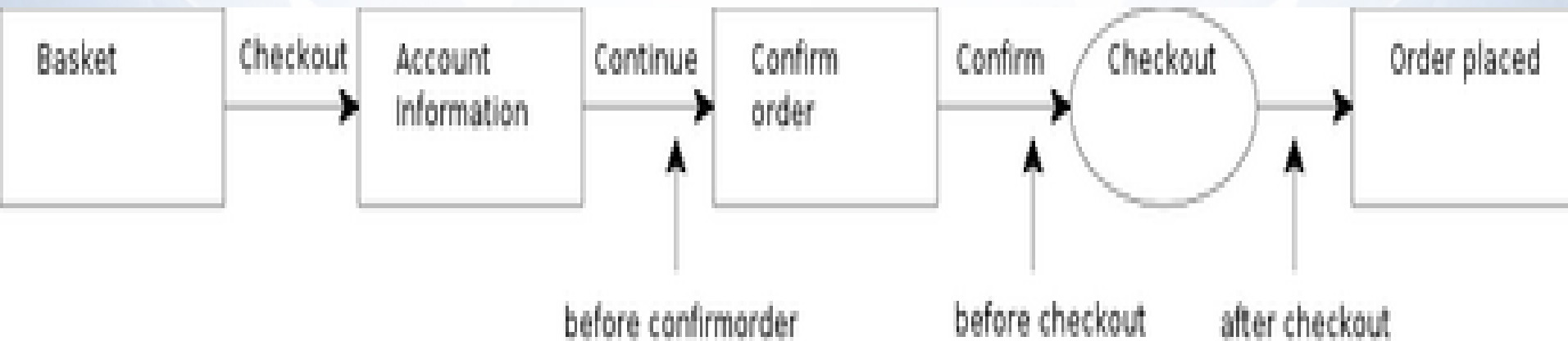
Payment Gateways - Available Commerce Triggers

Module	Function	Connection type
shop	confirmorder	before
shop	checkout	before
shop	checkout	after
shop	addtobasket	before
shop	addtobasket	after
shop	updatebasket	before
shop	updatebasket	after

* By default disabled, must be enabled in workflow.ini

Payment Gateways - Triggers

- The process between a product checkout and the order overview is presented in the following figure



- The Payment Gateway Workflow should be inserted before the checkout.
- After the confirm order page will the payment gateway workflow be activated

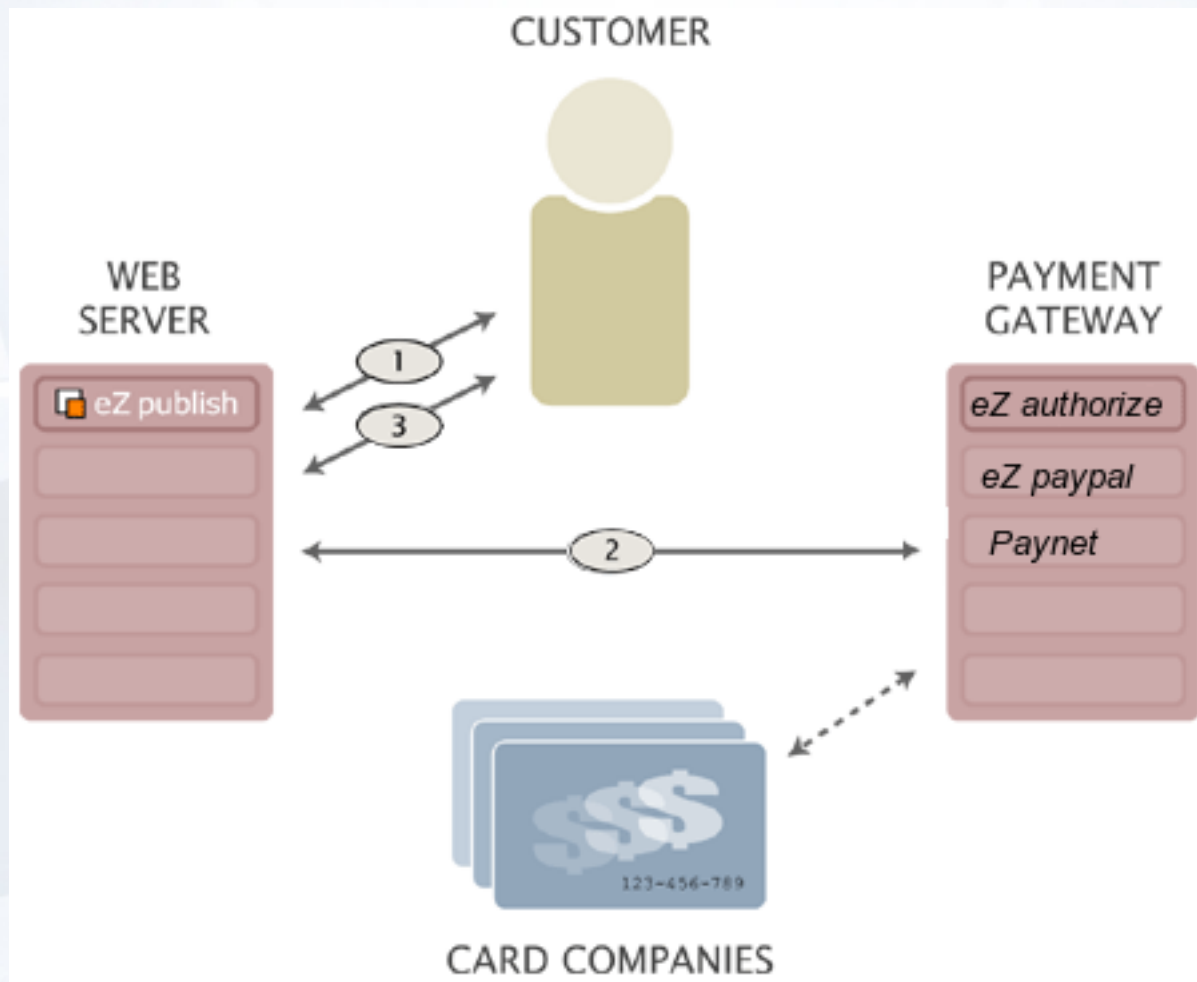
Payment Gateways - Workflow Events Process Example

- After the confirm order page, and before the checkout, the browser of the client will be redirected to the payment information entry view.
 - After the client payment has been approved the user is redirected to review the "order overview" page.
 - The ordered products are not directly visible in the administration interface. The payment gateway service will contact the eZ publish shop first.
 - This service will notify the shop of the payment.
 - Hereafter the shop will test the authentication of the notification.
 - The following figure illustrates the communication between the client browser, webserver which hosts the shop, and the payment gateway payment service.

Payment Gateways - Workflow Events Process Example

- The callback of the payment gateway service to the shop requires the webserver to be available via the internet.
- To check whether the callback is valid, the shop will query the payment service.
- Therefore the webserver must be able to complete requests to the payment gateway service.

Payment Gateways - Workflow Example Interaction Diagram



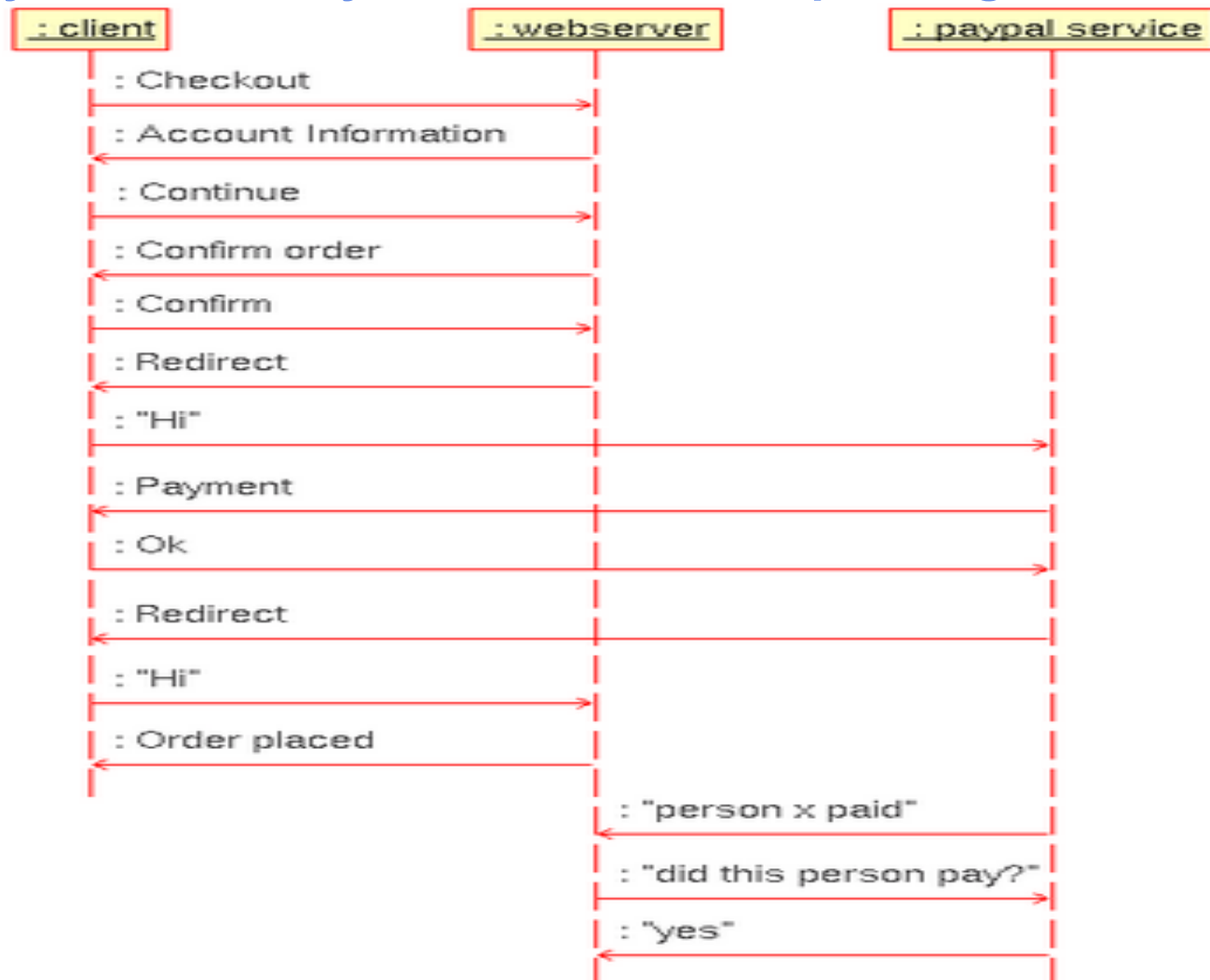
Payment Gateways - Workflow Events Process

- The numbers at the arrows define the sequence of the interactions
 1. The customer does a checkout from the products he or she wants to order.
 - After the customer has filled in its address information, the customer is redirected to the Payment Workflow.
 - The customer has to fill in his credit card information on the payment information page in the site.
 2. The customer has to fill in his credit card information on the payment information page in the site.
 - If the credit card seems to be valid, the customer is redirected to the next step in the checkout workflow or process.

Payment Gateways - Workflow Events Process

3. The customer gets a summary of the order when the transaction was successful.
 - Otherwise the customer is offered to checkout again.
 - Authorize.net will send a notification about the, successful or failed, payment to eZ publish.
 - This notification is also known as a callback.
 - eZ Publish relies on the callback to approve or decline orders.

Payment Gateways - Workflow Example Diagram



Payment Gateways - Existing Solutions

- Existing eZ publish (Payment Gateway) Workflow Extensions
 - eZ Authorize (Authorize.net)
 - http://ez.no/community/contribs/workflow/ez_authorize
 - eZ Paypal (Paypal.com)
 - <http://zev.ez.no/svn/extensions/ezpaypal/>
 - Simple Payment Methods (Other/Invoice)
 - http://ez.no/community/contribs/workflow/simple_paymentmethods
 - Protx (Protx)
 - http://ez.no/community/contribs/workflow/protx_payment_gateway
 - Worldpay (Worldpay)
 - http://ez.no/community/contribs/workflow/worldpay_payment_gateway_pubsvn
 - Paynet (Paynet.no)
 - http://ez.no/products/add_ons/paynet_gateway

eZ authorize - Audience

- North American based and focused
- We look forward towards helping existing and new eZ publish commerce applications.
- **Ideal:** Bringing eZ publish stores online both quickly and efficiently.
- **Need:** Customers need seamless payment solutions for their eZ publish store.
- **Problem:** Keep customer on one domain through entire checkout workflow including payment process (workflow).
- **Symptom:** Prevent paypal and other similar payment gateway solution which require 'site redirects'.
- **Solution:** eZ Authorize provides a complete secure solution for users of Authorize.net payment gateway.
- **Benefit:** Development cost savings for community by providing providing a free (as in freedom) solution in response to real customer needs of most commerce customers.

eZ authorize - Features

- About
 - Improved new way of implementing a payment gateway workflow
 - eZ Authorize is a true eZ publish payment gateway extension that provides transparent, secure credit card payment processing using the Authorize.net service
- Features
 - No redirect, eZ authorize does not redirect user away from eZ publish store to perform payment information entry and processing.
 - eZ authorize is unique in this way out of all current public contributed eZ publish payment gateway workflow extensions
 - Supports providing user choice of payment gateway during checkout.
 - Address and CV2 code verification
 - Credit card payment authorization

eZ authorize - Concepts and basics

- eZ authorize is an eZ publish payment gateway extension.
- The eZ authorize no-redirect solution (coupled to eZ Publish) prompts customers during the checkout process for their payment information without redirecting users to another 3rd party website.
- eZ authorize offers multi-gateway implementation to support user choice between multiple payment gateways.
- eZ authorize is secure in that it observes strict variable usage as well as requiring communication with the payment gateway service use ssl encryption to protect the private information transmitted and returned representing the authorization transaction.

eZ authorize - How to install a payment gateway (mini-howto)

- Download contribution
- Unpack to “extension” folder
- Set file ownership and permission
- Activate 'eZ authorize' extension
- Customize extension settings (as needed, desired or required)
- Select 'Setup' -> 'Workflows'
- Create 'Payment Gateways' Workflow Group
- Select 'Payment Gateways'
- Create workflow 'All Gateways'
 - Add event to workflow 'All Gateways' of type 'Event / Payment Gateway'
 - Select Type 'All'
 - Save Workflow

eZ authorize - How to install a payment gateway (mini-howto)

- Create workflow 'Authorize.net'
 - Add event to workflow 'All Gateways' of type 'Payment Gateway'
 - Select Type 'All' or 'Authorize.net' *
 - Save Workflow
- Select 'Setup' -> 'Triggers'
 - Select 'shop checkout before' to 'Authorize.net' workflow
 - or
 - Select 'shop checkout before' to 'Authorize.net' workflow
- Test eZ publish workflow configuration
- * The workflow selection 'Authorize.net' will not prompt the multi-payment workflow (payment providers) user choice

eZ authorize - Activate Extension

- Activating the Payment Gateway
1. Open up your preferred site.ini override file in an editor. Typically the override file will be located at settings/override/site.ini.append.php.
 2. Insert the text: `ActiveExtensions[]=ezauthorize` under `[ExtensionSettings]`.

```
3 [ExtensionSettings]
4 ActiveExtensions[]
5 ActiveExtensions[]=ezpaypal
6 ActiveExtensions[]=ezauthorize
```

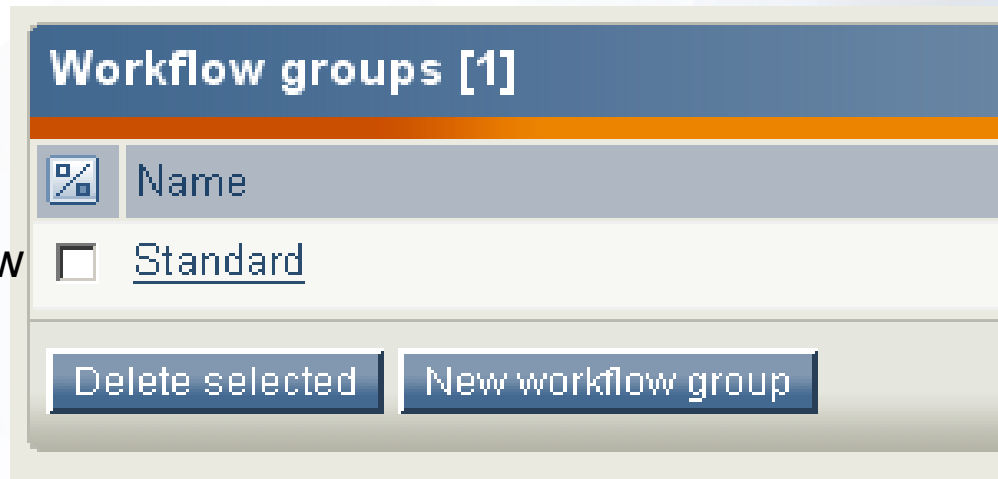
eZ authorize – Select workflows


3. Now open your site's eZ publish admin. Click on the "Setup" link on the top menu.

In the side menu, at the very bottom, click "Workflows"
You will be presented with the "Workflow groups" screen.

- Workflow groups are primarily a way to keep your workflows organized. Now make a new "Workflow group" to keep all your site's payment gateway workflows together in one "workflow groups".

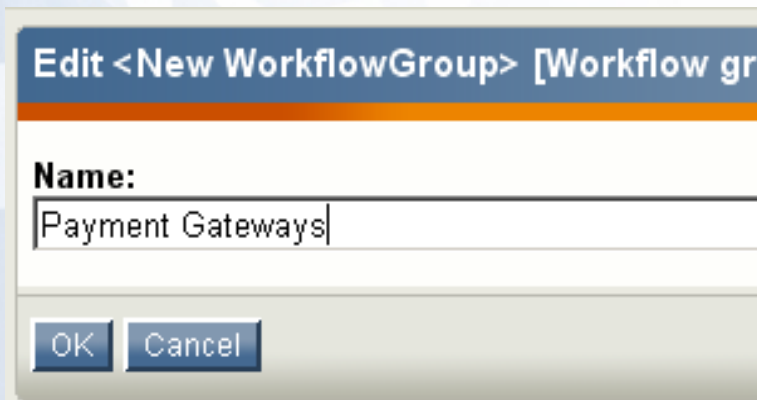
Click the "New workflow group" button.



Workflow groups [1]	
	Name
<input type="checkbox"/>	<u>Standard</u>

eZ authorize - Create workflow group

4. You will now be presented with the "New Workflow group" screen. Enter a name for the group like "Payment Gateways" should be fine, then click the "OK" button.



Dialog box titled "Edit <New WorkflowGroup> [Workflow gr". The "Name:" field contains the text "Payment Gateways". At the bottom are "OK" and "Cancel" buttons.



Screen titled "Workflow groups [2]". It displays a list of workflow groups:

<input checked="" type="checkbox"/>	Name
<input type="checkbox"/>	Payment Gateways
<input type="checkbox"/>	Standard

At the bottom are "Delete selected" and "New workflow group" buttons.

5. This will create the new workflow group "Payment Gateways" and take you back to the "Workflow groups" screen.
- We want to start adding workflows to the workflow group, click on the button "New workflow group" you just created (Payment Gateways in this example).

eZ authorize - Select workflow group

6. Now you will be inside your workflow group.

Here we can add new workflows by clicking the "New workflow" button.

Payment Gateways [Workflow group]

ID:
2

Name:
Payment Gateways

 **Workflows [0]**

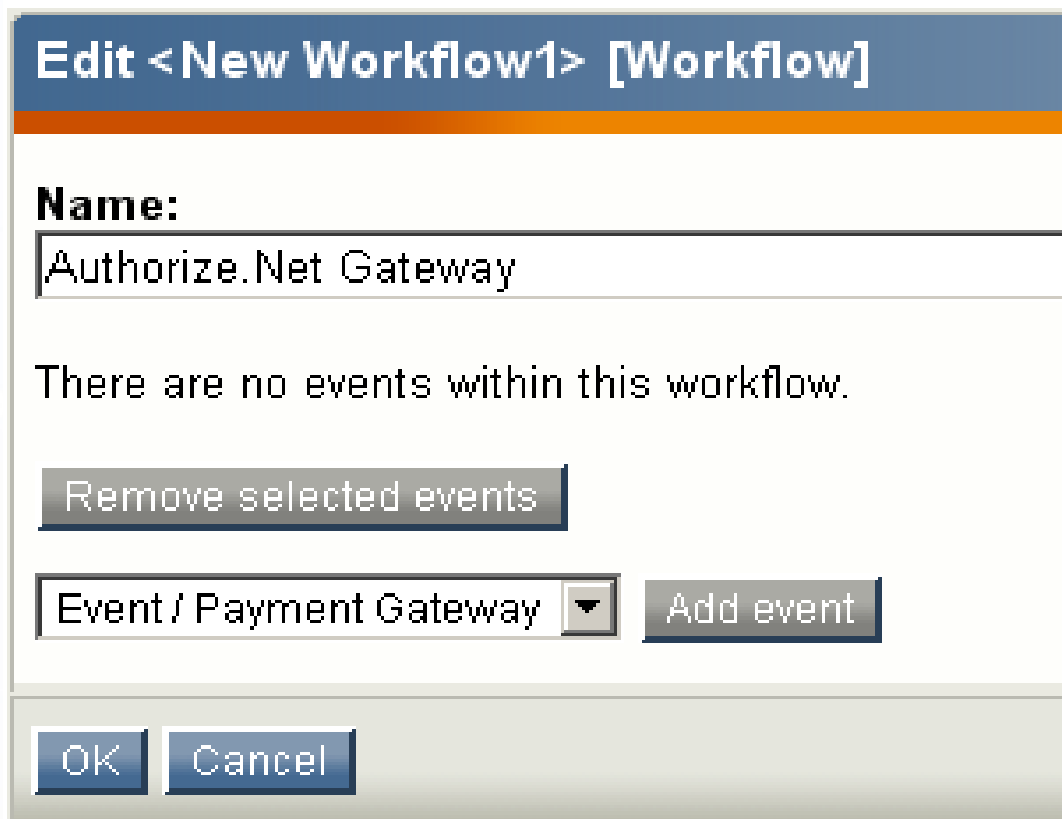
There are no workflows in this group.

eZ authorize - Add new workflow event

7. Name the workflow
'Authorize.net'.

In the select dropdown, select
'Event / Payment Gateway'.

Then click the 'Add event'.



Edit <New Workflow1> [Workflow]

Name:
Authorize.Net Gateway

There are no events within this workflow.

Remove selected events

Event / Payment Gateway ▼ Add event

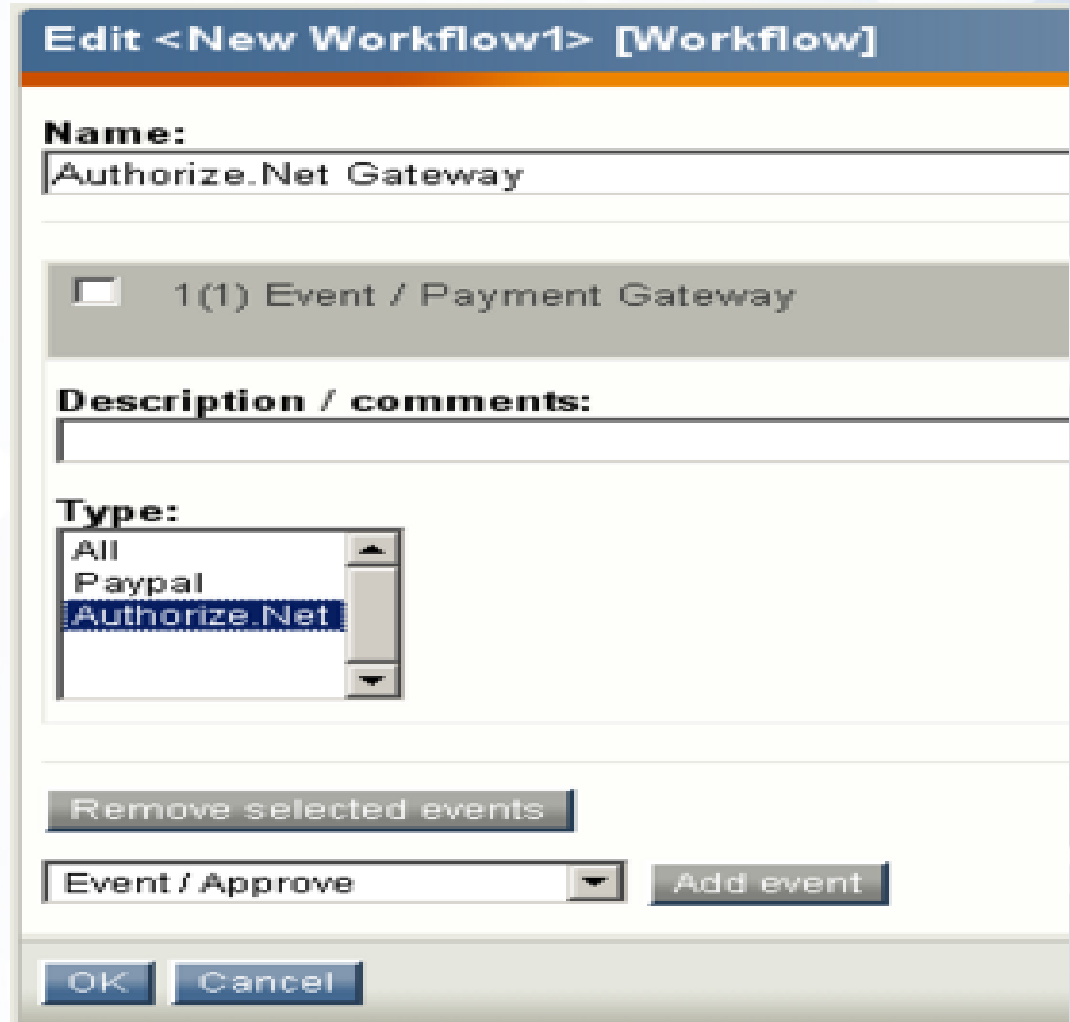
OK Cancel

eZ authorize - Select workflow event type

8. On the next screen you will see a multi-select box with a list of the payment gateways you already have installed.

Select 'Authorize.net'

Click the "OK" button.



Edit <New Workflow1> [Workflow]

Name:
Authorize.Net Gateway

☒ 1(1) Event / Payment Gateway

Description / comments:

Type:
All
Paypal
Authorize.Net

Remove selected events

Event / Approve Add event

OK Cancel

eZ authorize - Alternate workflow options

9. If you want to see how you can let a customer select from multiple payment gateways.
 - Repeat steps 5-8, only in step 7 name the workflow something like 'All Gateways', and in step 8 select 'All' from the multi-select box.
 - If you do this, you will now see two workflows in the 'Payment Gateway' "Workflow groups" screen.

Payment Gateways [Workflow group]

ID:
2

Name:
Payment Gateways

[Edit](#) [Remove](#)

 **Workflows [2]**

	Name
<input type="checkbox"/>	All Gateways
<input type="checkbox"/>	Authorize.Net Gateway

[Delete selected](#) [New workflow](#)

eZ authorize - Triggers

10. So we have now added one or two payment gateway workflow events.

In the next step, we will be telling the eZ publish system when we want this payment gateway event to happen.

- Click the "Triggers" link in the left hand menu.

11. Payment gateway events always happen in the "shop" module, during the "checkout" function when the connection type is "before".

- So click the select box under the workflow heading next to those listings.

eZ authorize – Using Triggers

- You will then be presented with the two workflows you have just created (along any other workflows that may already be in your application).
- Select the Authorize.Net workflow if you would like your customers to be forced to pay via Authorize.Net, or if you would like to give them a choice of paying by any payment gateway you have installed, select the "All Gateways" workflow.
- For the purposes of this tutorial, I'll be selecting the "All Gateways" workflow just so we can see what the payment gateway select screen should look like. When you have done this, make sure you click "Apply Changes".

eZ authorize - Trigger Selection

Workflow triggers [5]			
Module	Function	Connection type	Workflow
content	publish	before	No workflow
content	publish	after	No workflow
shop	confirmorder	before	No workflow
shop	checkout	before	All Gateways
shop	checkout	after	No workflow
			All Gateways
			Authorize.Net Gateway

Apply changes

- You have now taken all the steps you need to install a payment gateway.
- For this particular module, make sure you edit the `ezauthorize.ini.append.php` file in the `extension/ezauthorize/settings` directory to add your merchant specific information.

eZ authorize - Commerce checkout workflow

1. On the user side, add a product to the shopping cart and click the "Checkout" button.
2. Fill in information in the account information form, then click the "Continue" button.
3. On the next screen, review your order, then click the "Confirm" button.

eZ authorize - Commerce checkout workflow

- 4.1 If you set the trigger "shop.checkout.before" to "All Gateways" workflow (selected) for it's payment gateway, you should be presented with the "Select payment method" screen.
- For this example choose the Authorize.Net option ratio and click "Select". This will start start the payment gateway workflow.
- 4.2 If however you set the trigger "shop.checkout.before" to "Authorize.net Gateway" workflow (selected) for your payment gateway, you will be presented with the "Payment Information" screen directly.

eZ authorize - Payment Gateway User Choice

4.2 If however you set the trigger "shop.checkout.before" to "Authorize.Net Gateway" workflow (selected) for your payment gateway, you will be presented with the "Payment Information" screen directly.

Select gateway

☐ Paypal ☒ Authorize.Net

Select

Cancel

eZ authorize - Payment Information Submission

5. After clicking "Confirm" if you just have the "Authorize.net Gateway" selected in your workflow, you will be presented with the eZ Authorize "Payment Information" / credit card form.

Please enter your credit card information.

Name on Card:

Card Type:

Card Number:

Security Number:

Expiration Date:

Submit

Payment Gateways - Review

- Describe the terms and relevance including payment gateways, workflows, events, triggers and extensions
- Describe eZ authorize
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- The Installation of a payment gateway, eZ authorize
- Demonstrate a payment gateway workflow using eZ publish
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- Stay tuned ...
 - Solutions
 - Conclusions
 - Questions
 - References
 - Tutorials
 - Special Thanks

Payment Gateways - Conclusions

- We hope this simple tutorial is helpful in teaching you how to install the eZ Authorize (Payment Gateway Extension), a little more about how payment gateways, workflows, triggers work in general and configuring them.
- eZ publish makes implementing payment gateway solutions simple
- eZ publish provides strong support for multiple payment gateways
- eZ publish provides strong tools for building powerful commerce solutions
- eZ publish community has provided a growing set of powerful payment gateway contributions
- eZ publish ecosystem (community) provides rich opportunities to create unique commerce solutions and contribution
- eZ authorize is *free software*, meaning free as in freedom!

Payment Gateways - Questions, Ideas, Requests

- What
- How
- Why
- When
- Brain Stormmming - Suggestions on unique ideas involving
 - Further needed payment gateway implimentations
 - Workflow multiplexer events to start several workflows from within a workflow
 - Social Networking application of micro payment commerce workflows
 - Extending eZ authorize
 - Extending eZ paypal
 - Payment Gateway for Google Checkout
 - Commerce integration with eBay, Google Local, Yahoo, Amazon
 - eZ publish Commerce Solutions for North America

Brookins Consulting - Special Thanks

- Dylan McDiarmid
- Kristian Hole
- Bob Sims
- Paul Borgermans
- Frederik Holljen
- Matt Sweetman
- Paul Holman
- eZ systems
- GNU
- Internet

Payment Gateways - Would you like to know more?

- Documentation
 - http://ez.no/doc/extensions/paynet_terminal/1_x/installation
 - http://ez.no/doc/extensions/paynet_terminal/1_x/concepts_and_basics
 - http://ez.no/products/ez_publish/documentation/building_an_ez_publish_shop
 - http://ez.no/products/ez_publish/documentation/building_an_ez_publish_shop/
 - http://brookinsconsulting.com/solutions/ez_authorize/ez_authorize_tutorial
- Contribution on ez.no
 - http://ez.no/community/contribs/workflow/ez_authorize
 - <http://ez.no/community/contribs/workflow/ezcurlgateway>
- Support
 - http://ez.no/community/forum/developer/ez_authorize
 - <http://ez.no/community/forum/developer/ezcurlgateway>

Brookins Consulting - About

- Contributing eZ systems partner in the North America / USA.
- Brookins Consulting has been developing eZ publish business solutions, installation, training and consulting services since 2001.
- Brookins Consulting has been building sites using eZ publish since the release of version 1.0 in 2001.
- Brookins Consulting has developed stores, custom applications, intranets, and extranets all using eZ publish.
- Brookins Consulting has extensive eZ publish expertise.
- With a long standing history of eZ publish community contributions, forum support, documentation and development Brookins Consulting continues support and extend existing solutions integral to customer needs and business concerns.

Brookins Consulting - Contact

- Brookins Consulting
- eZ publish 'Bronze' Partner
- <http://brookinsconsulting.com>



- Phone: + 1 817 812 2782
- Email: [info \[at\] brookinsconsulting \[dot\] com](mailto:info@brookinsconsulting.com)
- Contact: <https://brookinsconsulting.com/content/view/full/58>

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- Sources
 - Wikipedia – Terms 'Payment Gateway' and 'Workflow'
 - eZ systems – 'eZ publish documentation' (3.5/3.6)
 - Brookins Consulting - 'eZ Authorize payment gateway installation and setup tutorial'